

REMARKS/ARGUMENTS

Favorable reconsideration and allowance of the present application are respectfully requested in view of the following remarks.

A. SUMMARY OF THIS AMENDMENT

By the current amendment, Applicant basically:

1. Cancel claims 13-24 without prejudice or disclaimer.
2. Respectfully traverse all prior art rejections.

As a result, claims 1-12 are pending, of which claims 1 and 5 remain independent. No new issues are introduced.

**B. § 103 REJECTION – JP 2000-022188 A, KANNEGIESSER ET AL.,
GARBINI ET AL.**

Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over JP 2000-022188 A (“JP’ 188”) in view of Kannegiesser et al. (U.S. Patent No. 6,309,506), and further in view of Garbini et al. (U.S. Patent No. 3,883,386). *See Final Office Action, pages 2-5.* Applicants respectfully traverse.

For a Section 103 rejection to be proper, a *prima facie* case of obviousness must be established. *See M.P.E.P. 2142.* One requirement to establish *prima facie case* of obviousness is that the prior art references, when combined, must teach or suggest all claim limitations. *See M.P.E.P. 2142;*

M.P.E.P. 706.02(j). Thus, if the cited references fail to teach or suggest one or more elements, then the rejection is improper and must be withdrawn.

In Fig. 1 of the present disclosure, a non-limiting example embodiment of a solar battery module production apparatus 100 is illustrated. The apparatus 100 includes a positioning belt 110, a heating belt 120, and a press belt 130. The positioning and heating belts 110, 120 are located adjacent to each other in a transferable manner. The press belt 130 is in opposed relation to the to the positioning belt 110 and the heating belt 120, and overlaps at least a portion of both the positioning and heating belts 110, 120.

Solar battery cells 10 and interconnectors 20 are positioned at an upstream portion of the positioning belt 110, transported to a downstream portion thereof, and then transferred onto the heating belt 120. The cells 10 and interconnectors 20 transferred onto the heating belt 120 are held between the heating and press belts 120, 130. The interconnectors 20 are soldered to the solar battery cells 10 by heating blocks 122, 132 while being transported, and cooled by cooling blocks 123, 133. The heating and cooling blocks 122, 132, 123, 133 are adapted to control the heating and press belts 120, 130 at predetermined temperatures.

Independent claim 1 recites utilizing a production apparatus that includes a press belt extending over a positioning belt and a heating belt in opposed relation to the positioning belt and the heating belt such that the press belt overlaps at least a portion of the positioning belt. Claim 3 also recites

a similar feature. The Final Office Action correctly notes that JP' 188 does not disclose this feature. Also, the Final Office Action correctly does not rely upon Garbini et al. to disclose the same feature.

However, contrary to the Final Office Action, Kannegiesser et al. does not correct the deficiencies of JP' 188 and Garbini et al. Kannegiesser et al. is directed towards a method for joining flexible surface structures by gluing. *See Kannegiesser et al., column 1, lines 5-10.* The Final Office Action alleges that the lower and upper 30, 31 belts are equivalent to the positioning and press belts as recited. *See Final Office Action, pages 2-3.* But as demonstrated below, the Final Office Action's reasoning is flawed and Kannegiesser et al. does not disclose the press belt overlapping the positioning belt.

As recited in claim 1, the solar battery cells and interconnectors are positioned on the upstream portion of the positioning belt and transported to the downstream portion and then transferred to the heating belt. The cells and interconnectors are soldered while being held by the heating belt and the press belt. That is, the connection is activated while on the heating belt when heat is applied to solder the cells and the connectors. The connection is not activated while on the positioning belt. The positioning belt aids in properly positioning the cells and the interconnectors for the soldering to take place.

Kannegiesser et al. illustrates in Figure. 1 a laminating line system that includes a take-off station 10, succeeded by in the treatment direction, a first laminating station 12, a second take-off station 13, a second laminating station

14, an air-cooling station 15 and a take-up station 16. *See Kannegiesser et al., column 4, lines 1-5.*

Prior to entering the laminating station 12, external surface structures 21 and 22, which are the structures to be laminated together, are first joined with a central surface structure 23 at the take-off station 10. The central structure 23 is an adhesive agent for gluing the external surface structures 21 and 22. *See Kannegiesser et al., column 4, lines 9-22; column 7, lines 5-10.*

The joined structures 21, 22, and 23 then enter the laminating station 12 through the feed side 32. The laminating station includes the lower and upper conveyor belts 30 and 31. The upper conveyor belt 31 only extends over a portion of the length of the lower conveyor belt 30. *See Kannegiesser et al., column 4, lines 46-57.* Note that both belts are entirely contained within the laminating station 12. The laminating station 12 also has in its interior, approximately along a portion of the shorter upper conveyor belt 31, a heating device 34, which is succeeded by a pressing device 35 in the direction of lamination 11. *See Kannegiesser et al., column 4, lines 63-66.*

The surface structures 21, 22 and 23 are transported between the conveyor belts 30 and 31 through the laminating station 12 and in so doing are heated up in the heating device 34 and glued to one another in the pressing device 35. The central surface structure 23 serving to supply the adhesive agent breaks up into surface structures 21 and 22 by the adhesive agent

partially penetrating these surface structures 21 and 22 and thus joining them together. *See Kannegiesser et al., column 7, lines 10-19.*

That is to say, within the laminating station 12, i.e., along the lower belt 30, the **connection of the structures 21, 22, and 23 is activated**. *Emphasis added.* The connection of the structures is activated while entirely on the lower and upper belts 30 and 31. This is in contrast with the positioning belt as recited. It is clear that the lower belt 30 cannot be equivalent to the positioning belt as recited.

It is also clear that the upper belt 31 overlaps only the lower belt 30 – it does not overlap any other belt. Thus, even assuming *arguendo* that the upper belt 31 is equivalent to the press belt, Kannegiesser et al. still fails to disclose the press belt overlapping the positioning belt.

Since none of JP'188, Kannegiesser et al., and Garbini et al. discloses the above-noted feature, the combination of the same references similarly fails. For at least this reason, claims 1 and 3 are both distinguishable over JP'188, Kannegiesser et al., and Garbini et al.

In addition, both Kannegiesser et al. and Garbini et al. are not analogous to the claimed invention and are not analogous to JP' 188. Both are directed to laminating flexible structures such as textiles, web-like structures, and papers through laminating, i.e., gluing.

In contrast, JP' 188 is directed toward soldering solar cells and lead tabs, which by their very nature are rigid in comparison. Issues faced in conveying

rigid structures are very different from issues faced in conveying flexible structures, and one of ordinary skill would not modify the JP' 188 based on the teachings of Kannegiesser et al. nor Garbini et al. as the Final Office Action suggests. Thus, JP' 188 cannot be combined with either Kannegiesser et al. or Garbini et al.

For at least these reasons, claims 1 and 3 are distinguishable over JP'188, Kannegiesser et al., and Garbini et al. Claims 2-4 by virtue of their dependencies from claims 1 and 3 are also distinguishable over JP'188, Kannegiesser et al., and Garbini et al.

The dependent claims are distinguishable on their own merits. Claims 2 and 4 recite that at least a surface of the positioning belt is composed of a resin. The Final Office Action alleges that the conveyor belt 4 disclosed in Garbini et al. is equivalent to the positioning belt as recited. *See Final Office Action, page 3*. The Final Office Action further alleges that Garbini et al. discloses lining the belt 4 with fiberglass or Teflon. *See Final Office Action, page 4 and 5*. A closer inspection reveals that Garbini et al. describes the upper and lower conveyor belts 1 and 3 being lined with either fiberglass or Teflon. However, Garbini et al. is silent with regard the composition of the conveyor belt 4. Thus, Garbini et al. does not disclose the recited feature.

Also regarding claim 3, the Final Office Action alleges that JP' 188 discloses, but does not show the conveyance mechanism. Nevertheless, it still alleges that the conveyance mechanism and the conveyor 10, respectively, are

equivalent to the positioning belt and the heating belt as recited – that is, they are alleged to be located adjacent to each other in a transferable manner. *See Final Office Action, page 5.* The Final Office Action has mistakenly interpreted that the conveyance mechanism and the conveyor 10 as being separate units.

JP' 188 clearly states, "The soldering equipment 1 is equipped with the **conveyor 10 as a conveyance mechanism.**" *Emphasis added; See JP' 188, paragraph [0015].* In other words, the conveyance mechanism and the conveyor 10 are one and the same. This is contradictory to the Final Office Action.

Applicants respectfully request that the rejection of claim 1-4 based on JP'188, Kannegiesser et al., and Garbini et al. be withdrawn.

C. § 103 REJECTION – JP 2000-022188 A, GARBINI ET AL., FOCKE ET AL.

Claims 5-8 stand rejected as allegedly being unpatentable over JP' 188 in view of Garbini et al., and further in view of Focke et al. (U.S. Patent No. 5,674,542). *See Final Office Action, pages 5-6.* Applicants respectfully traverse.

Claim 5 recites utilizing a production apparatus that includes a heating belt and a press belt disposed in opposed relation and at least one upper resilient member which biases the heating belt towards the press belt and at least one lower resilient member which biases the press belt toward the heating belt.

The Final Office Action correctly admits that none of JP' 188, Garbini et al. and Focke et al. discloses both upper and lower leaf springs. Focke et al. does disclose a leaf spring 35 exerting pressure on a lower pressure strand 26 of an upper conveyor 24. *See Focke et al., Fig. 1; column 3, lines 38-43.* To the extent that the leaf spring 35 exerts pressure from above can at best be equivalent to the upper leaf spring. Focke et al. does not disclose a lower leaf spring. Nevertheless, the Final Office Action jumps to the conclusion that it would have been obvious to add a similar spring on a lower side of the conveyor 10 of JP' 188.

It is well established that a proposed modification cannot render the prior art unsatisfactory for its intended purpose. *See MPEP 2143.01 V.* In JP' 188, inspiratory ports 40 are established in the conveyor 10. Air is inhaled from the inspiratory ports 40 by decompression operation of the air supply chamber 41 which is located immediately below the conveyor 10 and runs the length thereof. The purpose is to carry out adsorption maintenance of the cells and tabs on the conveyor 10. *See JP' 188, Figs 1 and 2; paragraph [0021].*

If the equipment of JP' 188 is modified as suggested in the Final Office Action, then springs would be added exerting upward pressure to the conveyor 10 which would move it away from the inspiratory ports 40, the result being that adsorption maintenance of the cells and tabs being inhibited. This defeats the purpose of providing the inspiratory ports 40. That is, the proposed modification would render JP' 188 unsatisfactory for its intended purpose.

For at least this reason, JP' 188, Garbini et al., and Focke et al. are not combinable, and thus, the rejections of claims 5-8 cannot stand. Applicants respectfully request that the rejection of claims 5-8 based on JP' 188, Garbini et al., and Focke et al. be withdrawn.

**D. § 103 REJECTION – JP 2000-022188 A, KANNEGIESSER ET AL.,
GARBINI ET AL., FOCKE ET AL., MEYER**

Claim 11 stands rejected as allegedly being unpatentable over JP' 188, Kannegiesser et al. and Garbini et al. as applied to claim 3, and further in view of Meyer (U.S. Patent No. 4,997,507). *See Final Office Action, pages 6-7.* Claim 12 stands rejected as allegedly being unpatentable over JP' 188, Garbini et al. and Focke et al. as applied to claim 7, and further in view of Meyer. *See Final Office Action, pages 7-8.* Applicants respectfully traverse.

Claims 11 and 12 depend from claims 3 and 7, respectively. Claim 3 is demonstrated to be distinguishable over JP' 188, Kannegiesser et al. and Garbini et al. Likewise, claim 7 is demonstrated to be distinguishable over JP' 188, Garbini et al., and Focke et al. Meyer does not correct the deficiencies of the above-noted references. Therefore, claim 3 is distinguishable over JP' 188, Kannegiesser et al. Garbini et al. and Meyer, and claim 7 is distinguishable over JP' 188, Garbini et al., Focke et al., and Meyer. By virtue of their respective dependency therefrom as well on their own merits, claims 11 and 12 are distinguishable over the respective combination of references.

Applicants respectfully request that the rejection of claims 11 and 12 be withdrawn.

E. REJECTIONS OF CLAIM 13-24

The rejections of claims 13-24 are rendered moot. Applicants respectfully request the rejections of these claims be withdrawn.

F. CONCLUSION


All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance. Should there be any outstanding matters that need to be resolved, the Examiner is respectfully requested to contact Hyung Sohn (Reg. No. 44,346), to conduct an interview in an effort to expedite prosecution in connection with the present application.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____


Hyung N. Sohn
Reg. No. 44,346

HNS/edg
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100